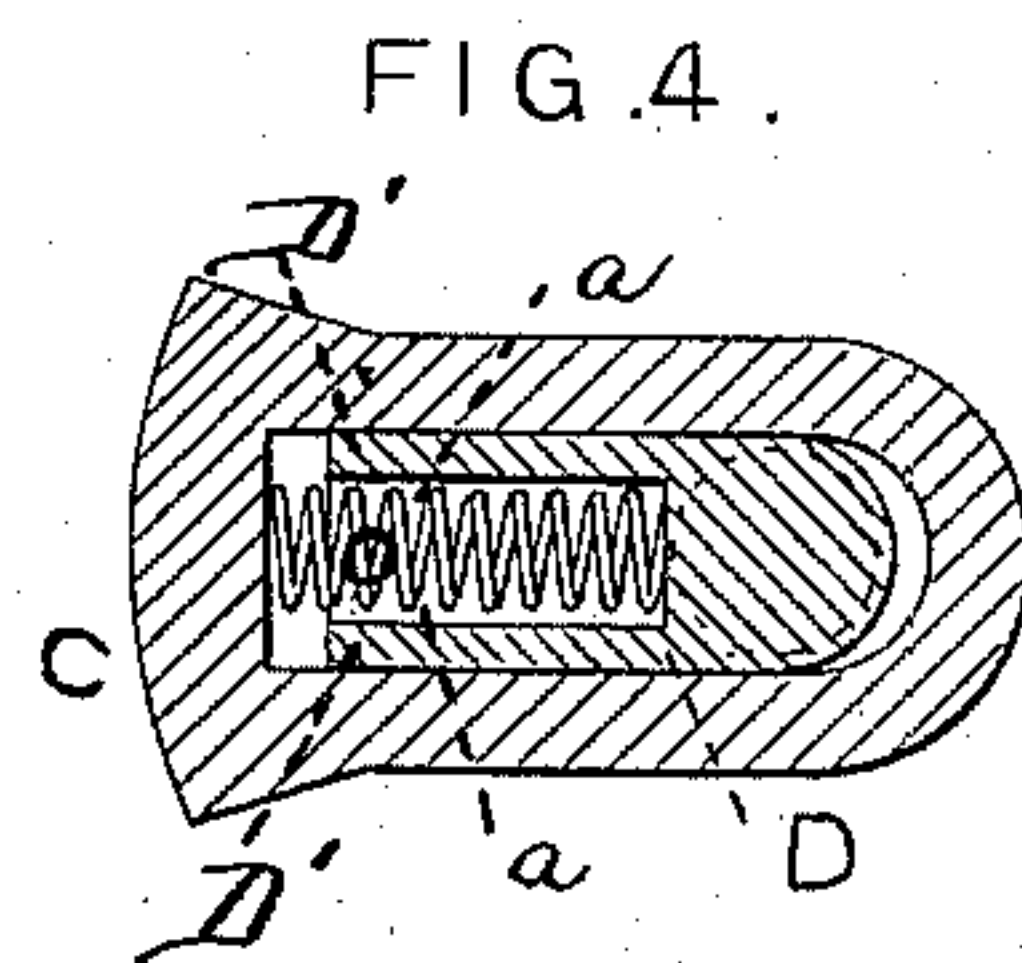
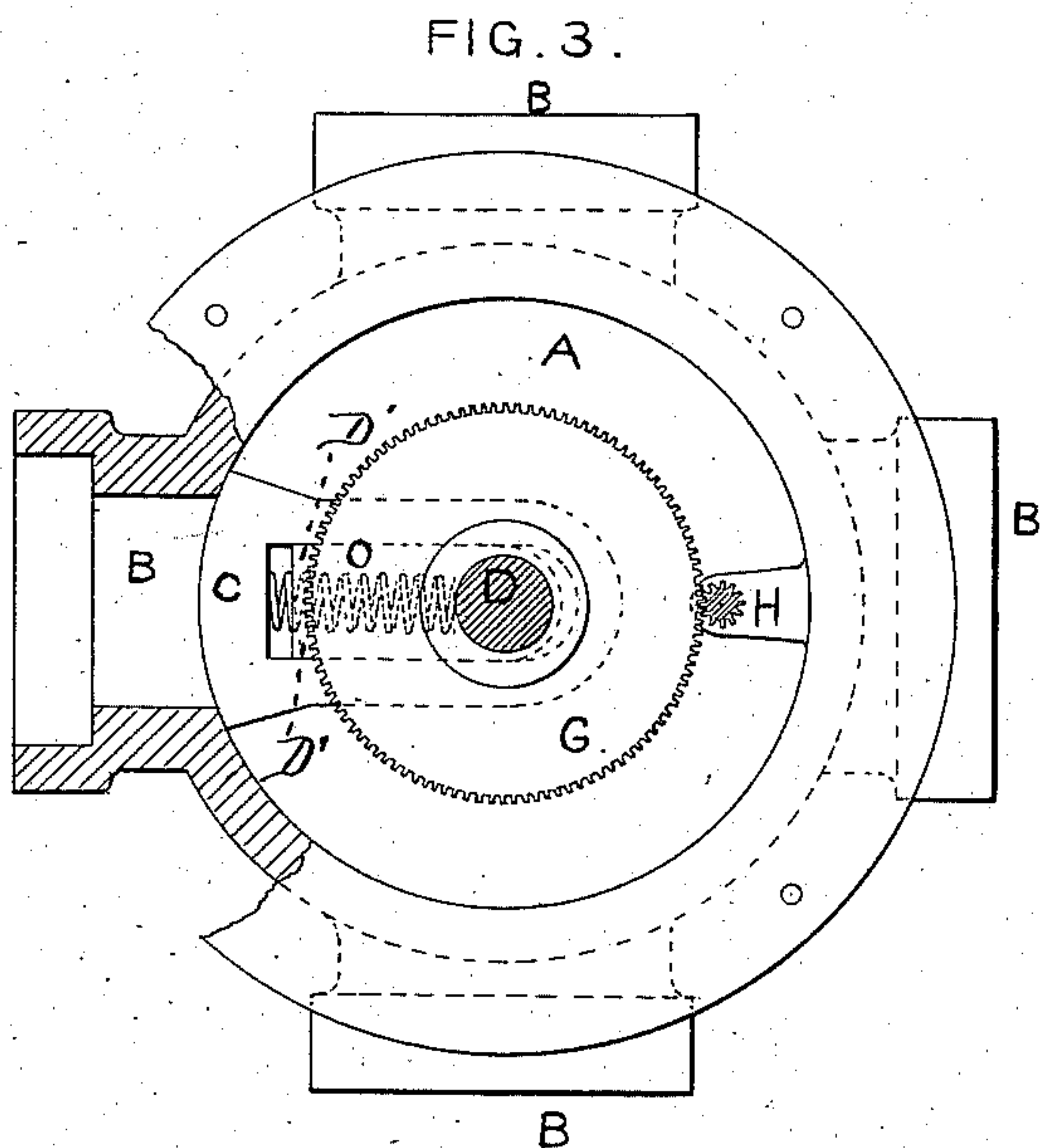
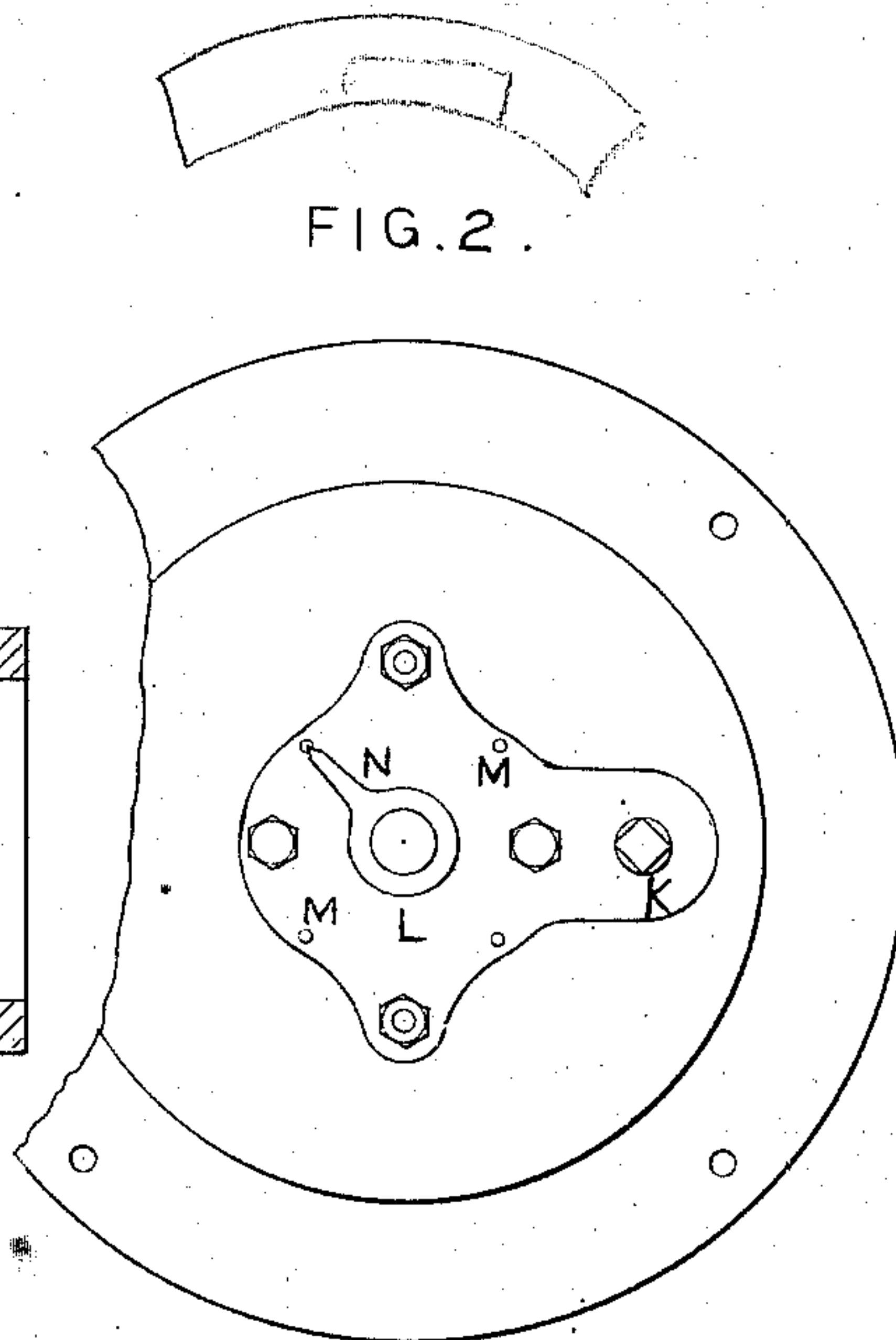
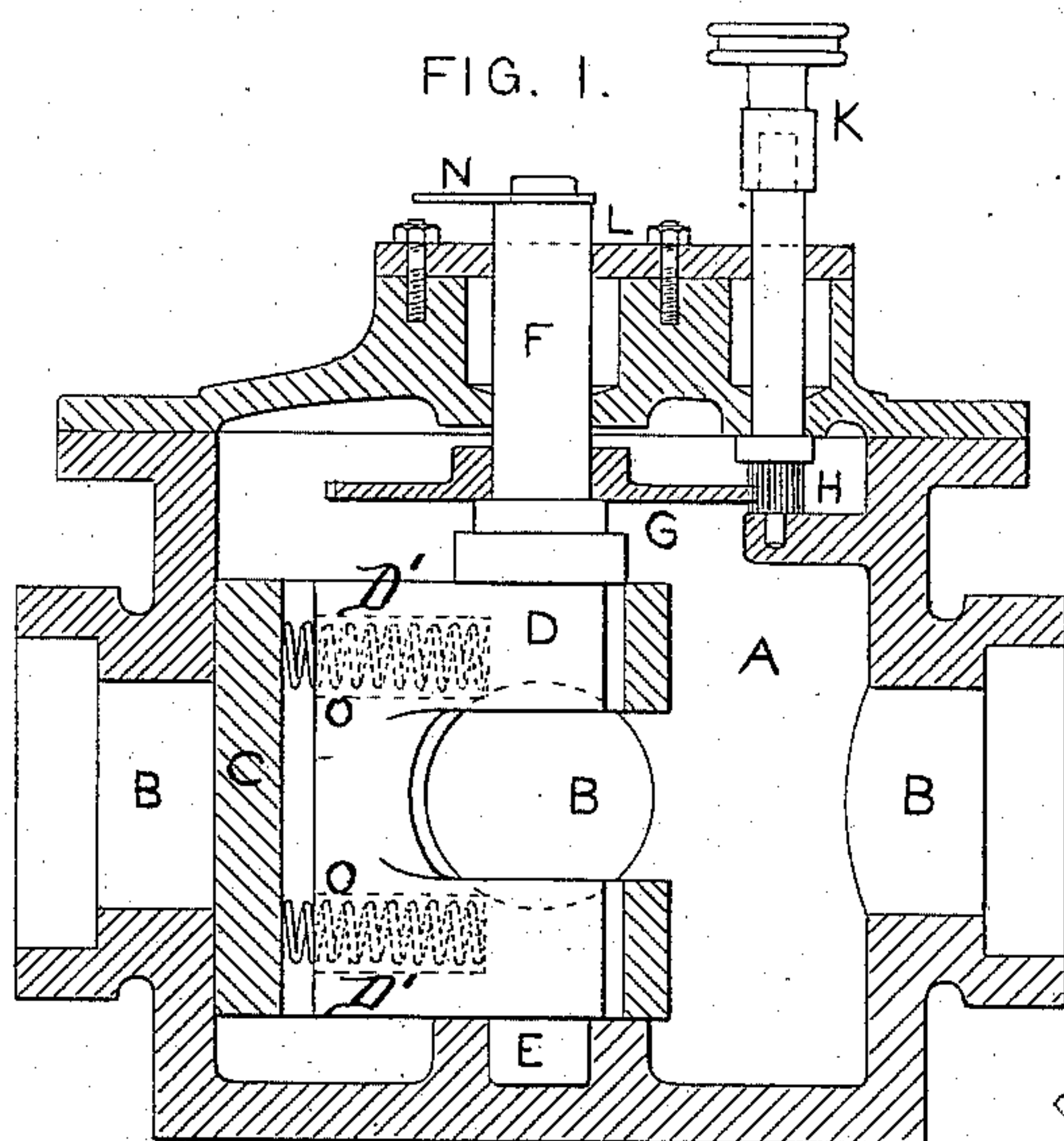


J. BIRD.

Valve for Street Water-Mains.

No. 160,640.

Patented March 9, 1875.



WITNESSES.

Boyd Elliot  
John E. M. Bird

John Bird

INVENTOR.



# UNITED STATES PATENT OFFICE.

JOHN BIRD, OF JERSEY CITY, NEW JERSEY.

## IMPROVEMENT IN VALVES FOR STREET WATER-MAINS.

Specification forming part of Letters Patent No. **160,640**, dated March 9, 1875; application filed October 26, 1874.

*To all whom it may concern:*

Be it known that I, JOHN BIRD, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain Improvements in Valves for Street Water-Mains, of which the following is a specification:

This invention relates to that class of devices used for controlling the direction of the water in the street-mains in which a valve is arranged in what is usually termed the branch section of a water-pipe, whereby the water can be stopped off in any branch by turning the valve to cover that section of pipe. My invention has for its object to render such class of devices more perfect and reliable in operation; and to this end it consists in a peculiar construction of the valve and its stem, as will be hereinafter described.

Figure 1 is a vertical section of the valve and valve-chamber through its center. Fig. 2 is a plan of the top or exterior of said chamber. Fig. 3 is a plan with the top removed. Fig. 4 is a cross-section of the valve and its stem that operates it.

At A is represented the valve-chamber proper, which consists of a cylinder furnished with the several branches or sockets, as at B, to which the mains are connected, and said cylinder may be placed at the intersection of two streets, so that the water-pipes in the two streets may intersect each other at said cylinder leading into it and out of it, as may be desired, and effected by the valve shown at C, which is simply a segment of a circle made to fit upon the inner face of the cylinder A, as best seen at Fig. 3, where it is represented as covering one of the branches connected with the valve-chamber. Said valve is cast with a rectangular opening vertically through it, into or through which is fitted a valve-stem, as at D, which is provided with an axis, the lower end of which works in a step, as at E, in the lower portion of the chamber A, and the upper end works through a bearing and stuffing-box, as at F, in the upper plate or cover of the chamber, as is plainly shown in Fig. 1. The said valve-stem is constructed or provided with lateral arms D' D', in the outer ends of which are formed recesses, *a*, and in said recesses are arranged springs,

as at O, which bear against the valve C and press it at all times against the inner face of the chamber or cylinder A, so that no grit of any kind may get between the face of the valve and its seat, and also that the valve may sweep around close upon the inner face of the chamber and clear off any dirt that may adhere thereon. Upon the upper portion of said stem, either within or above the chamber, is fastened a toothed wheel, as at G, into which works a pinion, as at H, the axis of which also works through a stuffing-box in the cover, and may extend on up to the surface of the street, where a key may be connected to turn it, to operate the valve, or it may merely reach through the top of the chamber A, and be made to receive a key, as is now commonly done in water-gates, &c., as at K. Said valve may also be operated by a worm in place of the pinion, and in that case the axis will extend out through the side of the chamber or over it, as the case may be, instead of through the top, as here shown, and then be provided with a crank or other convenient device for rotating it.

Both stuffing-boxes may be closed by a cap, as shown at L in Figs. 1 and 2, and upon said cap around the valve-stem may be provided a dial or points, as at M, to indicate where the valve is placed, the same being indicated by a pointer, as at N, upon the valve-stem above the chamber A.

It will be observed, as shown at Fig. 4, that a space is left between the stem and the yoke of the valve, so that as it may wear away upon the seat the stem will not prevent the valve from closing upon the seat. The face of the valve and the interior of the chamber where it works are to be coated with some sort of lining that will prevent oxidation, so that the valve will fit closely at all times. The advantages of such a construction are that by casting the cylinder A in the three or four way branches now required in the street-mains, and providing the same with a valve, as here shown, but little expense will be added to provide a complete water-gate to each intersection of the mains, and by so doing the water may be shut off in any street between two other streets without interfering with any

other portion of the mains, or stopping it off in large districts, as is now often done, where the ordinary gates are used.

I therefore claim—

The combination, with the intersecting branches of a street water-main, of the valve-stem D, having the lateral arms D' D', provided with recesses *a* in their outer ends, the loose segmental valve having the rectangular

vertical opening, in which the valve-stem works, and the springs O, arranged in the recesses in the arms of the valve-stem, and pressing the valve outwardly, substantially as and for the object specified.

JOHN BIRD.

Witnesses:

BOYD ELIOT,  
JOHN G. W. BIRD.